

REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

A. Status of the Claims

As a result of the present amendment, claims 1-25 are presented for continued prosecution.

B. Objections to the Abstract

The Examiner objected to the abstract for using legal phraseology and for exceeding the proper length. Applicant has provided a replacement abstract as correction.

C. Objections to the Specification

The Examiner objected to the specification for containing multiple grammatical and spelling errors which appear to have been made when the priority application was translated into English. Applicant has provided a substitute specification as correction. Both a clean copy and a marked-up copy of the substitute specification are enclosed. New matter has not been introduced.

D. Objections to the Declaration

The declaration had been objected to because the applicant did not acknowledge his duty to disclose information known to be material to patentability under Rule 1.56. A replacement declaration has been transmitted to applicant for signature. The signed copy will be submitted as soon as it becomes available.

E. Claim Objections

The Examiner objected to claims 6, 7 and 10-15 for being improper multiple dependent claims. Applicant has amended claims 6, 7, 10-12, 14 and 15 to depend on claim 1. it is believed that claims 6, 7 and 10-15 are in proper form and ready for examination.

F. Claim Rejections under 35 U.S.C. §112

Claims 1-25 had been rejected as being indefinite. In sum, the Examiner highlighted multiple portions of the claims that either lack antecedent basis or fail to particularly define the invention after the translation of the priority application into English.

Applicant has amended claims 1-25 to address the Examiner's rejections raised in sections 7-13 of the Office Action. In addition, many other portions of the claims have been amended to correct grammatical and/or antecedent basis errors that were raised when the application was translated into English. New matter has not been added. It is respectfully submitted that amended claims 1-25 comply with §112.

G. The Invention

The present invention includes an infrared irradiation apparatus that employs combustion gas to provide quick and efficient thermal energy transfer for industrial drying operations.

In one of the novel aspects of the invention, the infrared irradiation apparatus includes multiple irradiation modules having a flexible refractory ceramic plate which is malleable and has a porous structure.

The porous structure of the flexible refractory ceramic plates is illustrated in Figure 3 of the application. As described in lines 4-12 on page 5 and in lines 4-14 on page 11 of the application, the porous structure allows the fibers to move as gas passes, thereby modulating the gas volume flowing through the ceramic plate to conduct the combustible mixture to the surface where the hot fibers are located. The porous structure therefore combustion active at the surface, which overcome conventional drawbacks where the flame is "swallowed" causing inner burning which reduces the efficiency of the process or possibly causing explosion.

H. Claim Rejections under 35 U.S.C. §102

Claims 1-5, 8 and 9 had been rejected as being anticipated by Treleven (U.S. 5,010,659).

Treleven had been cited to teach an infrared drying system having drying modules 12, metal plates 170 with holes 112, and several sensors.

In order to maintain an anticipation rejection under 35 U.S.C. §102, the prior art must disclose each and every element of the rejected claims with sufficient clarity to prove its

existence in the prior art. Applicant respectfully submits that Treleven does not anticipate the claimed invention.

1. Treleven does not teach or suggest flexible refractory ceramic plates having a porous structure

Claim 1 recites that the irradiation modules include a flexible refractory ceramic plate (15) that is malleable and has a porous feature.

As illustrated in Figure 3 of the application, the porous structure of the flexible refractory ceramic plate permits air/gas modulation because the flexible pores define the path of the air/gas mixture. When the pressure of the mixture is reduced, part of the pore closes and the mixture is conducted to the hot fibers at the surface. Combustion is kept active, which multiplies the IR heating efficiency, results in uniform IR emission in all burning zones, and avoids heat shadows (see lines 4-12 on page 5 and lines 23-24 on page 6 of the application)

The heating unit 158 is illustrated in Figure 8 of Treleven (col. 6, lines 29-37). Heating unit 158 includes drying modules 12 and 14, where each drying module 12 and 14 is composed of a plurality of heating units 157.

Drying modules 12 and 14 of Treleven do not include a flexible refractory ceramic plate that is malleable and porous as recited in claim 1. Treleven therefore does not teach each and every element of claim 1 as required to maintain an anticipation rejection under §102. Applicant therefore respectfully submits that the claimed invention is patentable over Treleven.

I. Fees

This Response is being filed within six months from the mailing date of the Office Action. A three month extension of time is requested and payment is enclosed. No further fee is believed to be due. If, on the other hand, it is determined that further fees are due or any overpayment has been made, the Assistant Commissioner is hereby authorized to debit or credit such sum to Deposit Account No. 02-2275. Pursuant to 37 C.F.R. 1.136(a)(3), please treat this and any concurrent or future reply in this application that requires a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. The fee associated therewith is to be charged to Deposit Account No. 02-2275.

J. Conclusion


In view of the actions taken and arguments presented, it is respectfully submitted that each and every one of the matters raised by the Examiner has been addressed by the present amendment and that the present application is now in condition for allowance.

An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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CERTIFICATE OF ELECTRONIC TRANSMISSION
I hereby certify that this document is being electronically transmitted to the Commissioner for Patents via EFS-Web on February 28, 2008.

LUCAS & MERCANTI, LLP

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Timothy D. Meade

Attached: Replacement abstract
Clean substitute specification
Marked-up substitute specification